

IN THE SPECIFICATION

Please amend the specification as follows:

1. Amend the paragraph on page 1, lines 6-13, as follows:

The present invention relates to an interference signal canceling apparatus, which is mounted on a base station apparatus used in a base station apparatus used in a mobile communication system of CDMA (Code Division Multiple Access) and which is used in combination with an array antenna, and relates to its interference signal canceling method.

2. Amend the paragraph on page 1, lines 16-20, as follows:

In a mobile station communication system of CDMA, there is a problem in which since signals of a plurality of users are transmitted in the same band, to deteriorate reception quality deteriorates as a result of undergoing influence of interference signals.

3. Amend the paragraph on page 3, line 28, through page 4, line 3, as follows:

The delayers 13-1 and 13-2 delay the received signals by the processing time of ICUs 12-1 to 12-3, and each outputs the resultant to each of the adders 14-1 and 14-2.

4. Amend the paragraph on page 4, line 18, through page 5, line 5, as follows:

The adder 15-1 adds the first replica signal and the first residual signal on a user-by-user basis. Similarly, the adder 15-2 adds the second replica signal and the second residual signal on a user-by-user basis. This cancels the interference signal from the received signal on an antenna-by-antenna basis so as to obtain a desired signal. Namely, for example, when attention is paid to user 1, the signal of user 2 and the signal of user 3, which cause interference with user 1, are eliminated from the received signal to obtain a desired signal about user 1 for every antenna. The same is applied to the signal of user 2 and the signal of user 3. The obtained desired signals are inputted to ICUs 12-1 to 12-3 of the second stage, respectively.

5. Amend the paragraph on page 5, lines 6-14, as follows:

According to the conventional interference signal canceling apparatus, the same processing as performed in the first stage is repeated in the second stage, so that the accuracy of replica

signal is improved and that of the interference signal cancellation is improved. In other words, the more the number of stages are increased, the more the ~~inference~~ interference signals about the respective users sent from the other users are canceled.

6. Amend the paragraph on page 6, lines 17-27, as follows:

In FIG. 2, the ICU 12-1 is divided into a front stage S1 where the signals received by the respective antennas 11-1 and 11-2 are subjected to despreading and then the resultants are multiplied by reception weights of the receptive antennas, respectively; a middle stage S2 where RAKE combining and temporary determination are carried out; and a back stage S3 where the signal, subjected to temporally temporary determination, is multiplied by a replica weight to perform re-spreading so as to generate a replica signal.

7. Amend the paragraph on page 8, lines 6-14, as follows:

The RAKE combiner 27 provides RAKE combining to the signals of the respective paths P1 to P3 subjected to array combining, and a determining device 28 performs temporarily temporary determination to the RAKE combined signal outputted from the RAKE combiner 27. A signal d, which has been subjected to temporary

determination and which ~~outputted~~ output from the determining device 28, is inputted to the multiplier 29 of the back stage S3.

8. Delete the paragraph on page 9, lines 5-8.

9. Amend the paragraph on page 10, lines 1-5, as follows:

In this way, the conventional signal canceling apparatus generates the replica signal for every antenna that form forms the array antenna so as to improve the reduction in the amount of calculations and the circuit scale.

10. Amend the paragraph on page 10, lines 6-13, as follows:

However, it is assumed that the number of users is L, the number of antennas is K, and the number of paths is M. Since it is necessary to provide $(L \times K \times M)$ reception weight multipliers and $(L \times M)$ reception weight calculators to the conventional signal canceling apparatus as an entirety of apparatus, the further reduction in the amount of calculations and the circuit scale is more required.

11. Amend the paragraph on page 10, lines 22-27, as follows:

The above object objective can be attained by forming directivity using the array antenna, performing selection of directivity every antenna and distribution to generate a replica signal on a directivity-by-directivity basis and to cancel interference.

12. Amend the paragraph on page 15, lines 16-24, as follows:

According to the interference signal canceling apparatus of this embodiment, the same processing as performed in the first stage is repeated in the second stage, so that the accuracy of replica signal is improved and that of the interference signal cancellation is improved. In other words, the more the number of stages are increased, the more the inference interference signals about the respective users sent from the other users are canceled.

13. Amend the paragraph on page 18, lines 16-25, as follows:

In FIG. 6, the ICU 103-1 is divided into a front stage S1 where any one of the directional signal A and the directional signal B is selected every path and is subjected to despreading, thereafter compensating for a channel variation; a middle stage

S2 where RAKE combining and temporary determination are carried out; and a back stage S3 where the signal subjected to temporarily temporary determination is re-spread to generate replica signals and the replica signals are distributed every path to be outputted.

14. Amend the paragraph on page 19, line 24, through page 20, line 4, as follows:

The RAKE combiner 305 provides RAKE combining to the despread signals X of the respective paths P1 to P3, and a determining device 306 performs temporarily temporary determination to the RAKE combined signal outputted from the RAKE combiner 305. A signal d, which has been subjected to temporary determination and which outputted from the determining device 306, is inputted to the multiplier 307 of the back stage S3.

15. Amend the paragraph on page 21, line 21, through page 22, line 3, as follows:

Here, assuming that the number of users is L, the number of antennas is K, the number of paths is M, and the number of groups is G. It is unnecessary to provide the reception weight multipliers to the array antenna, which is combined with the interference signal canceling apparatus of FIG.

1 explained as prior art. In contrast to this, it is necessary to provide $(K \times G)$ reception weight multipliers to the array antenna, which is combined with the interference signal canceling apparatus of the present invention of FIG. 4.

16. Delete the paragraph on page 22, lines 4-12.